3.13 CULTURAL RESOURCES

This section describes the archaeological and historical resources that remain at Ames Research Center.

A. Archaeology

The following discussion of archaeological resources at Ames Research Center is based on the *Archaeological Overview and Survey, Naval Air Station Moffett Field, Santa Clara County, California and Naval Auxiliary Landing Field Crows Landing, Stanislaus County*, by Basin Research Associates, Inc., December 1991, which are incorporated into this EIS by reference.

Archaeological research suggests that the southern shore of the San Francisco Bay has been inhabited continuously for up to 4,000 years. In the early years of European settlement, Ames Research Center was within the boundaries of the Ohlone tribal area. Based on archaeological data and mission records, researchers have estimated that in 1770 there were approximately 1,400 Native Americans living on the Peninsula. It appears that a number of different groups may have had temporary camps in or near what is now Ames Research Center during pre-settlement and early settlement years. By 1810, the traditional Ohlone way of life seems to have disappeared due to introduced diseases, declining birth rates, and the impact of the mission system, which transformed gatherers and hunters into agricultural laborers and craft artisans.

Although the area around Ames Research Center continued to be settled in the early part of the 19th century, the patterns of use changed. The economy began to focus on the growth of agricultural crops and the transportation of those crops to market through a series of landings and associated warehouses along the Bay. Most of the land that Ames Research Center sits on was originally part of the Rancho Posolmi, which was granted to Lopez Indigo, or Ynigo, a Native American, in 1844 by then governor Micheltorena. Ynigo and other Native Americans are known to have farmed the property from at least 1834 through 1864.

There appear to have been a small number of homes and other structures within what is now Ames Research Center by the late 1900s, but no historic archaeological sites associated with early European development have ever been located at Ames Research Center.

Ames Research Center has been extensively surveyed for archaeological remains, and ten formally-recorded prehistoric and historic archaeological sites have been reported within its boundaries. Most of the sites were recorded in 1912 by Loud. Little information about these sites exists and boundaries are not known. A 1991 report concluded that it is no longer possible to find any evidence of these archaeological sites within Ames Research Center itself. The sites appear to have been seriously disturbed or destroyed by agriculture, fill, and development over the course of the century. Because of the level of site disturbance, none of the archaeological sites previously recorded at Ames Research Center are considered significant enough to be included in the National Register of Historic Places.[1] Additionally, a record search has indicated that no new studies have identified archaeological sites at ARC since 1991. Figure 3.13-1 identifies potential archeologically sensitive areas within Ames Research Center.

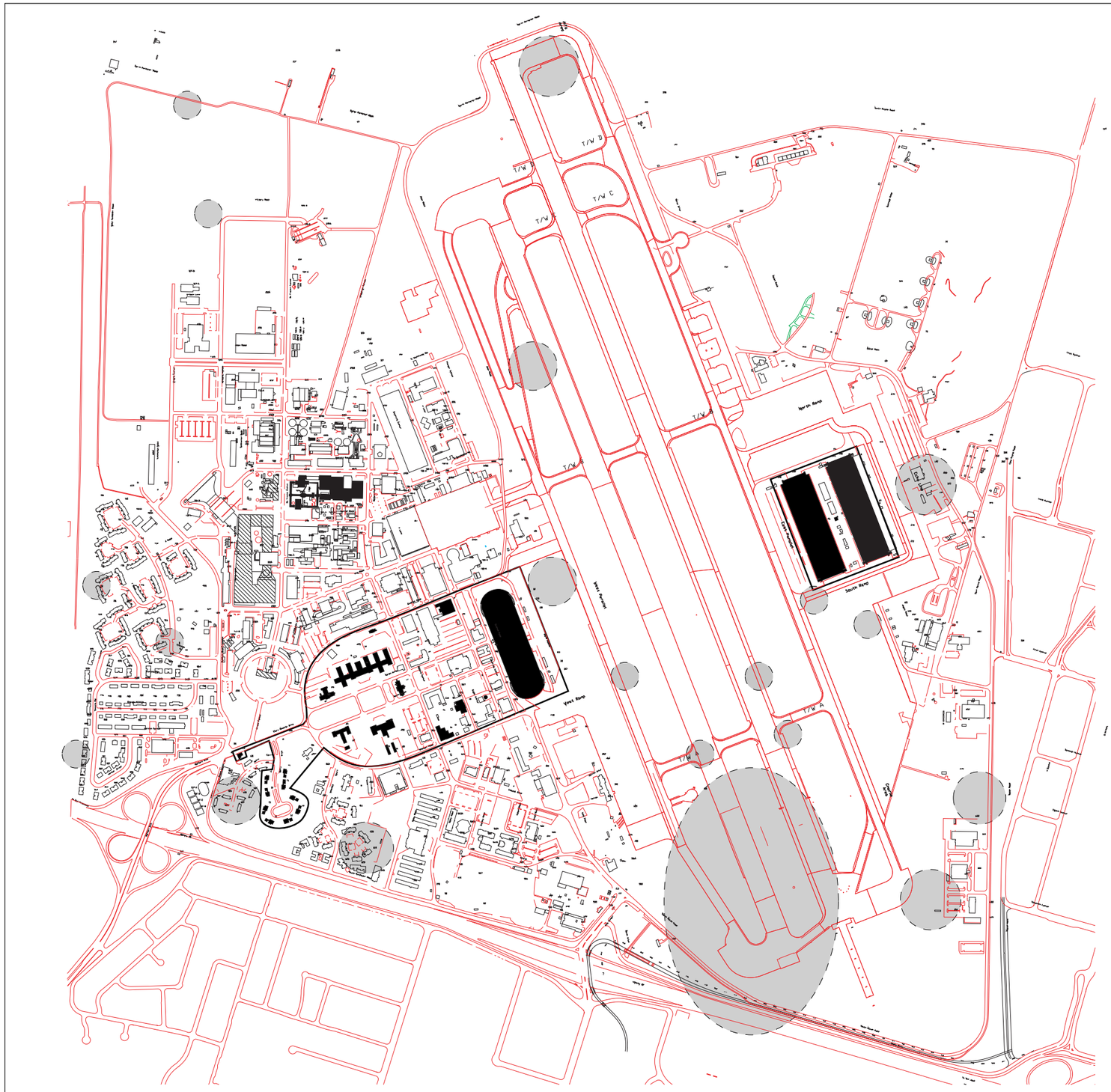
B. Historic Resources

This discussion of historic resources at Ames Research Center is based on the *NASA Ames Research Center Historic Resources Protection Plan for portions of Moffett Field, California* by NASA, March 2001 and the *NASA Ames Research Center Section 106 Survey*, November 28, 1995, both of which are incorporated by reference into this EIS, and on the following surveys.

[1] Basin Research Associates. *Archaeological Overview and Survey*. 1991

FIGURE 3.13-1

CULTURAL RESOURCES



- Historic Building Listed on the National Register of Historic Places
- Building Nominated for Listing on the National Register of Historic Places
- Historic District
- Potential Archeologically-Sensitive Area

N

0 76m 152m 305m

0 250ft 500ft 1000ft

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Several surveys of historic resources have been undertaken at Ames Research Center to determine buildings' eligibility for listing on the National Register of Historic Places (NRHP). In 1984, the National Park Service did a survey of NASA centers. As a result of this survey, the Unitary Plan Wind Tunnel Complex was listed on the NRHP as a historic landmark.

In 1991, a Section 106 survey was conducted by the Navy on a subset of buildings at Moffett Field and the Crows Landing Naval Auxiliary Landing Field. The historic context of this survey was the 1930 to 1935 (military) and 1942 to 1946 (engineering) periods. A total of 43 buildings and structures were determined to be eligible for NRHP listing, all at Moffett Field. The area encompassed by the 43 eligible buildings/structures was named Shenandoah Plaza in honor of the first American dirigible. In 1994, the Shenandoah Plaza National Historic District was listed on the NRHP.

In 1995, a Section 106 review was conducted by NASA for 19 buildings within the Ames Campus area built before 1950. A total of three structures were found to be eligible for NRHP listing: the ARC Administration Building (N-200), the 40- by 80-Foot Wind Tunnel (N-221), and the 6- by 6- Foot Supersonic Wind Tunnel (N-226). These buildings are currently being nominated to NRHP.

In 1999, Science Applications International Corporation conducted a survey for NASA of all buildings at Ames Research Center dating from the Cold War era, 1946 to 1989. This survey of 124 buildings concluded that none of the Cold War-era buildings at Ames Research Center reached the level of exceptional significance required under the criteria for cold war significance (Criteria G) to make them eligible for the NRHP.

In 2000, Lorie Garcia of Beyond Buildings conducted a Section 106 survey for NASA of Buildings 148 through 156, 158, and 167, none of which was found to be eligible for listing on the NRHP.

In 2001, a Section 106 survey was conducted for NASA by Architectural Resources Group of Buildings N-204, N-204A, N-205, N-206, N-207A, N-208, N-209, N-222, N-223, and N-218A in the Ames Campus area, all of which were approaching 50 years of age. None were found to be eligible for listing.

1. Shenandoah Plaza Historic District

The majority of the historic resources within Ames Research Center are part of the Shenandoah Plaza Historic District (SPHD). The SPHD also includes the officers' housing area of Berry Court within the Berry Court Military Housing area, which is not under NASA administration and thus is not part of the project area. Figure 3.13-1 shows the location of the SPHD and historic buildings within Moffett Field. The buildings, landscapes, and objects included in the SPHD are listed on the National Register of Historic Places because of their association with lighter-than-air technology during the inter-war period between 1932 and 1945, as described in Chapter 1 of this EIS, and because of their distinctive site plan and Spanish Colonial Revival architecture.

a. Site Plan and Landscape

The 1933 site plan, created by the Navy Department Bureau of Yards and Docks, is based on an axial layout with major administrative buildings set symmetrically along a generous 1.5-hectare (4.5-acre), horse-shoe shaped central greensward. The formal lawn sweeps eastward to the immense streamlined form of Hangar 1, which provides a majestic focal point for the SPHD and for Ames Research Center as a whole.

The landscaping is another particularly striking aspect of the original site plan. The original design's broad expanses of lawn and rows of mature liquid amber trees have been preserved, and give the SPHD a formal, park-like feel quite distinct from the surrounding landscape of the Baylands.

b. Contributing Buildings

There are 43 historic buildings within the SPHD, 25 of which are within Ames Research Center (the others are within the Berry Court Military Housing area). Table 3.13-1 lists the NASA-controlled contributing buildings within the

Shenandoah Plaza NRHP District. Figure 3.13-1 identifies the contributing buildings within Ames Research Center.

The Spanish Colonial Revival style dominates, with its neutral colors, red tile roofs, terra cotta ornamentation and almost residential proportions. Buildings in the SPHD are typically two-stories tall, with low-pitched, slightly-hipped rooflines. Exterior walls are consistently quite plain, except for a string course around the entire perimeter of each building separating the first and second floors. Windows are simple rectangular shapes, vertically-oriented, multi-paned and double-hung. Flowery terra cotta ornamentation defines the major front and back entrances, and often some of the most prominent windows.

The remainder of the 49 buildings within the Shenandoah Plaza Historic District are all considered non-contributing.

c. Key Historic Resources

Of the historic buildings within the Historic District, the most striking are the Administration Building (Building 17), which sits at the head of Shenandoah Plaza, the Bachelor Officers Quarters (Building 20), and the original hangars, especially Hangar 1.

The almost 1,800 square meter (19,000 square foot) Administration Building, constructed in 1933, follows the typical architectural pattern of the original campus design: two-stories high, with stucco walls, red tile roofing, and terra cotta ornamentation. It is the most prominently sited building within the original 1933 campus plan. Unlike the other buildings in the SPHD, the Administration Building's primary entrance projects out from the main structure, with a triple round-arched entrance. The detailing around the major entrances and windows includes ornamental urns, pilasters, and floral sculpture that counterpoint the austere, shallow cruciform shape of the building. There is also a small centered bell tower with flat arches on each of its faces, capped by a small red dome.

TABLE 3.13-1 **SHENANDOAH PLAZA HISTORIC DISTRICT CONTRIBUTING STRUCTURES**

Building Number	Building Name/ Historic Use	Year Built	Within Study Area
Hangar 1	Hangar 1	1933	Y
46	Hangar 2	1943	Y
47	Hangar 3	1943	Y
2	Balloon Hangar	1933	Y
5	Water Tower	1933	Y
10	Heat Plant	1933	Y
15	Fire Station/ Laundry	1933	Y
16	Locomotive Crane Shed	1933	Y
17	Admirals Building	1933	Y
18	Aerological Center	1933	Y
19	Bachelor Enlisted Quarters	1933	Y
20	Bachelor Officers Quarters	1933	Y
21	Bachelor Officers Garage	1933	Y
22	Bachelor Officers Garage	1933	Y
23	Dispensary	1933	Y
24	Ambulance Garage	1933	Y
25	Bowling Alley/Theater	1933	Y
26	Gate House/Iron Fence	1933	Y
32	Floodlight Tower	1933	Y
33	Floodlight Tower	1933	Y
37	Scale House	1933	Y
40	Flagpole	1933	Y
55	Heat Plant for Hangars 2 and 3	1943	Y
NA	Commons	1933	Y
NA	Anchor	NA	Y

Source: NASA Ames Research Center HRPP, 2000

The Bachelor Officers Quarters (Building 20), constructed in 1933, is also a large two-story structure in the typical Spanish Colonial style of the SPHD buildings. It sits on the south side of the plaza where the central green widens outwards, facing the equally prominent but less architecturally impressive Bachelor Enlisted Quarters. The Bachelor Officers Quarters has more ornamentation than other buildings in the SPHD, and a very elegant entryway of three large round arches. A rear wing projects south from the building and abuts the original 1933 officer automobile storage structures, Buildings 22 and 23.

The most significant building in the SPHD, however, is Hangar 1, which was designed in the Streamline Moderne style to emulate the sleek, ultra-modern form of the airship it was built to house rather than the Spanish Colonial Revival architecture of the rest of the original core of Moffett Field. The giant parabola of Hangar 1 towers 65 meters (211 feet) above the plaza. Constructed in 1932 through 1933, this one-story steel truss building is one of the largest non-internally supported buildings in the United States, enclosing 3 hectares (8 acres) of land. The smooth curve of its plate metal cladding is detailed on each side with bands of horizontally-oriented windows set flush in the skin. Gigantic curving doors on tracks create the north and south ends of the buildings. Hangar 1 is historically significant because of its unique use, its beautifully-executed Streamline Moderne design, its ingenious structural construction, and its size; it is still the dominant landmark in the southern San Francisco Bay Area. In addition to anchoring the Shenandoah Plaza Historic District, Hangar 1 has been designated a Naval Historical Landmark and a California Historic Civil Engineering Landmark by Section 57 of the American Society of Civil Engineering.

2. Ames Campus Historic Buildings

This section describes the historic buildings within the Ames Campus.

a. The Unitary Plan Wind Tunnel Complex

The Unitary Plan Wind Tunnel (UPWT) Complex was listed as a National Historic Landmark on the NRHP in 1984. It has also been designated an

International Historic Mechanical Engineering Landmark. The UPWT consists of three separate wind tunnels, each of which loops back to connect to the same central 260,000 hp engine. Covering 7,100 square meters (77,000 square feet), the three huge loops of metal conduit create one of the most striking architectural landmarks at Ames Research Center.

b. Other Elements

As discussed earlier, a 1995 survey of buildings in the Ames Campus area concluded that three additional buildings are eligible for listing on the NRHP: the NASA/Ames Research Center Administration Building (N-200), the 40- by 80-Foot Wind Tunnel (N-221), and the 6- by 6-Foot Supersonic Wind Tunnel (N-226). All three have been nominated to the NRHP.

The NASA/Ames Research Center Administration Building (N-200) was constructed in 1943 and dates back to the earliest years of the Center. Its importance relative to the other structures at the Center is signified by the greater degree of ornamental detail near the windows and entry, as well as its formal, symmetrical facade. As the Administration Building, it housed Ames' management during its gradual transformation from an aeronautical laboratory emphasizing high-speed wind tunnel research to the diverse and sophisticated research campus of today.

The 40- by 80-Foot Wind Tunnel (N-221) is the single most prominent landmark within the Ames Campus area. This structure is the largest wind tunnel in the world. For almost 40 years, it was a closed system tunnel. An expansion from 1979 to 1982 created an additional 80- by 120-foot test section with an open-intake air system. The wind tunnel was designed to test full-scale aircraft. It was used during the last year of World War II, and also served as the test site of the first US aircraft with a jet engine, the Ryan XFR-1.

The 6- by 6-foot supersonic wind tunnel (N-226) is the site of testing that led to significant advances in the fields of aerodynamics and space exploration by helping to solve the mysteries of flight beyond Mach 1. The supersonic wind tunnel included a feature that allowed a range of speeds from Mach 1.3 to 1.8,

and 130 cm (50-inch) glass windows for researchers to observe the flow of supersonic air around the models in the tunnel.